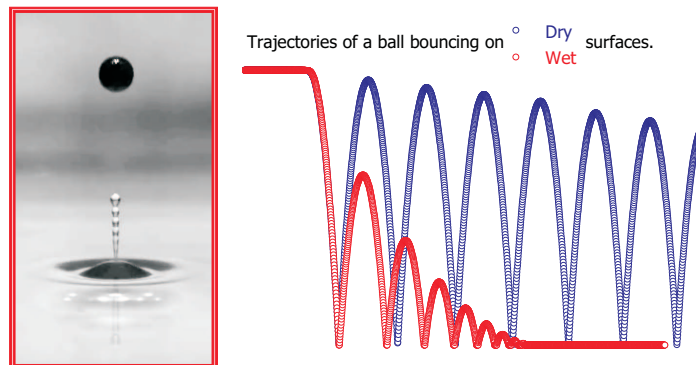


Dynamics of Wet Granular Matter

Kai Huang

Experimentalphysik V, Universität Bayreuth, D-95440, Germany

Adding a small amount of water to a pile of sand increases its mechanical stability dramatically, leading to a material stiff enough for sculpturing sand castles. This is due to the cohesion introduced by the liquid bridges formed between adjacent particles. I will report 3 recent experiments towards understanding the dynamics of this material.



- A single particle bouncing on a wet wall loses kinetic energy. This triggers the questions of how to define an effective restitution coefficient for wet collision, and how to relate it to the energy dissipation of the collision event.
- Two dimensional wet spheres under horizontally swirling motion form granular rigid clusters, but they are not stable: rearrangements via random sublimation and deposition processes are observed.
- A thin layer of wet granular matter fluidized by vertical vibrations form target and spiral patterns. The spiral pattern usually has three arms that rotates continuously in one direction and a core that is wandering around. The threshold for the patterns and the origin of the rotating spiral arms will be discussed.